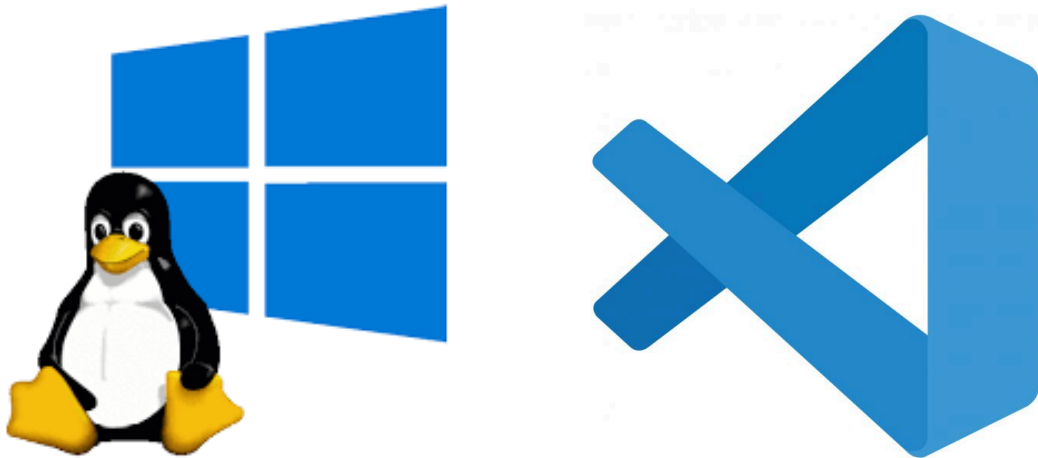


Visual Studio Code for WSL

<https://forge.uclouvain.be/elic/learning.git>



Pierre-Yves Barriat

ACELI Training Sessions March 25th, 2025

What is WSL ?

Windows Subsystem for Linux (WSL) allows you to leverage the benefits of Linux package management and command line tools to streamline your development workflow. This is particularly useful for web developers and **data scientists**



The easiest way to access your Ubuntu development environment in WSL is using **Visual Studio Code** via the built in *Remote extension*

What is Visual Studio Code ?

Visual Studio Code (VS Code) is a lightweight but powerful source code editor which runs on your desktop and is available for Windows, macOS and Linux.

It has a rich ecosystem of extensions for languages (such as C++, Fortran, Java, Python, etc) and runtimes (Git, Jupyter, etc)

VSC is one of the most popular and powerful text editors used by software engineers today

free, open-source and [available](#) for macOS, Windows and Linux 👍

WSL on a Windows UCLouvain PC

Linux from CII interface is **overkill**

based on Virtualbox: heavy workload 🤔

No auto process (yet) to install WSL from UCLouvain IT support

You must install WSL by your own with the **Administrator access** from CII interface

Don't worry: just follow the guideline below... 💪

Machine SE25.035

Titulaire
0

[Modification](#)

Modèle OptiPlex Tower Plus 7020

S/N 7S14J84

Outils

Un écran bleu, des lenteurs ?

Cliiner (nettoyage du système)
Dernier scan Pas encore effectué

Mise à jour des pilotes système
Dernier scan Pas encore effectué

Scan pour malware et virus

Une configuration, une installation ?

Obtenez un accès Administrateur
(Durée de 15 minutes)

Besoin de Linux ?

Vous pouvez disposer
d'un système Linux virtualisé.

Utilisateur et ressources

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Identifiants de connexion
Bureau UCLouvain (MyUCL)
Coordonnées professionnelles

Espace personnel Z : (20 Go)
OneDrive

Imprimantes

Besoin d'une autre imprimante ?
Contactez le gestionnaire en charge.

Partages de groupe

Pour un autre groupe de travail,
contactez le gestionnaire en charge.

Agendas partagés

Création, affiliation, configuration,...

Système

Backup DPM > Signaler <
un problème
Backup non configuré !

Sécurité

Pare-feu Actif
Antivirus Opérationnel
▶ AV MAJ 11/03/2025

Windows

Système Windows 11 Education
Version 24H2
Dernière MAJ 24/11/2024

Questions récurrentes

>> Services IT <<

Réinitialisation mot de passe
Wifi
Accès hors UCLouvain (VPN)
Bureau à distance sur une machine
Offre de services Office365
* Suite Office 365
* OneDrive (sauvegarde Cloud)
* Teams (communication, visio,...)
Transvol (transfert de gros fichiers)
Impression de posters
Informations sur le didactique SST



Service-desk

Catalogue des logiciels

Centre Logiciels

Autorisation à distance

Imberia - Image Système

Reset CII

Windows required features

1. From CII interface, ask for an **Admin access**
2. Open a **Powershell terminal** in **Administrator mode**
3. Copy paste this line and press *Enter*

```
dism.exe /online /enable-feature /featurename:Microsoft-Windows-Subsystem-Linux /all /norestart
```

4. Copy paste this line and press *Enter*

```
dism.exe /online /enable-feature /featurename:VirtualMachinePlatform /all /norestart
```

5. Restart your computer

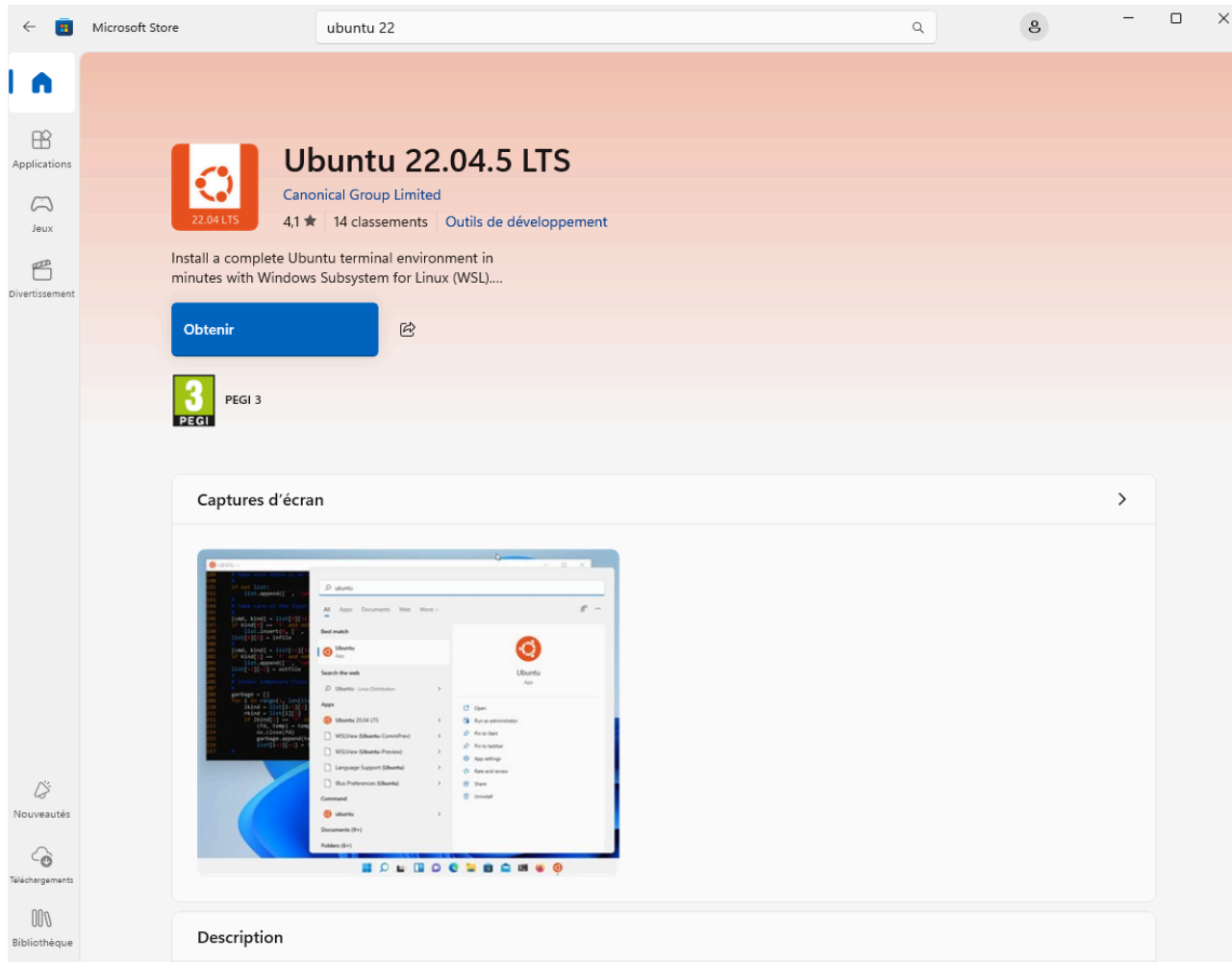
Install WSL2

optional: it depends on your specific Windows 11 release (<1903)
if your build number is lower than **18362.1049**

1. From CII interface, ask for an **Admin access**
2. Download the **WSL2 update** and install it (double click on the file)
https://wslstorestorage.blob.core.windows.net/wslblob/wsl_update_x64.msi
3. Open a **Powershell terminal** in **Administrator mode**
4. Copy paste this line and press *Enter*

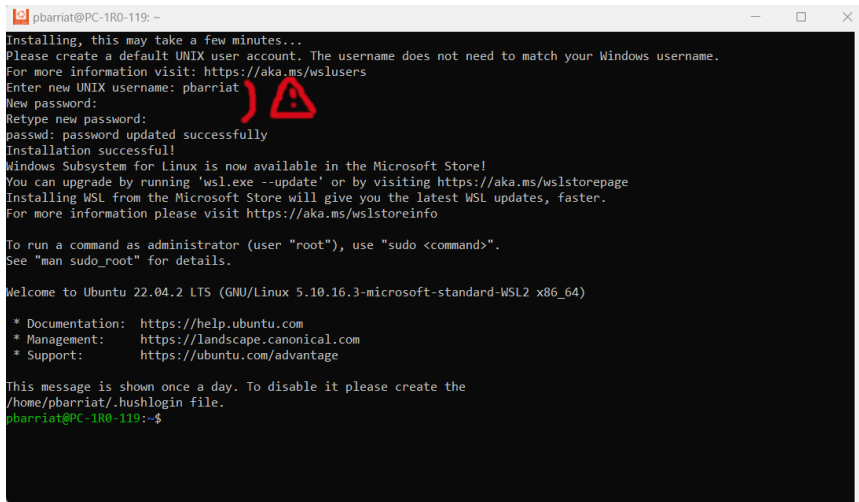
```
wsl --set-default-version 2
```

Install Ubuntu 22.04 from Microsoft Store



First configuration of Ubuntu

Open Ubuntu and choose a login/password

A screenshot of a Windows terminal window titled "pbarriat@PC-1R0-119: ~". The terminal shows the output of the Ubuntu installer. It prompts for a default UNIX user account, where "pbarriat" is entered. It then prompts for a new password and its retyping, which is successful. The installation is successful, and it informs the user that Windows Subsystem for Linux is available in the Microsoft Store. It provides links for documentation, management, and support. Finally, it shows the Ubuntu 22.04.2 LTS welcome message and the prompt "pbarriat@PC-1R0-119:~\$".

```
pbarriat@PC-1R0-119: ~
Installing, this may take a few minutes...
Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: pbarriat
New password:
Retype new password:
passwd: password updated successfully
Installation successful!
Windows Subsystem for Linux is now available in the Microsoft Store!
You can upgrade by running 'wsl.exe --update' or by visiting https://aka.ms/wslstorepage
Installing WSL from the Microsoft Store will give you the latest WSL updates, faster.
For more information please visit https://aka.ms/wslstoreinfo

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

Welcome to Ubuntu 22.04.2 LTS (GNU/Linux 5.10.16.3-microsoft-standard-WSL2 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/advantage

This message is shown once a day. To disable it please create the
/home/pbarriat/.hushlogin file.
pbarriat@PC-1R0-119:~$
```

In the Ubuntu terminal do

```
sudo apt update
sudo apt upgrade
```

Graphical User Interface

Open a **Powershell terminal** in **User mode** and do

if your build number is lower than **18362.1049**

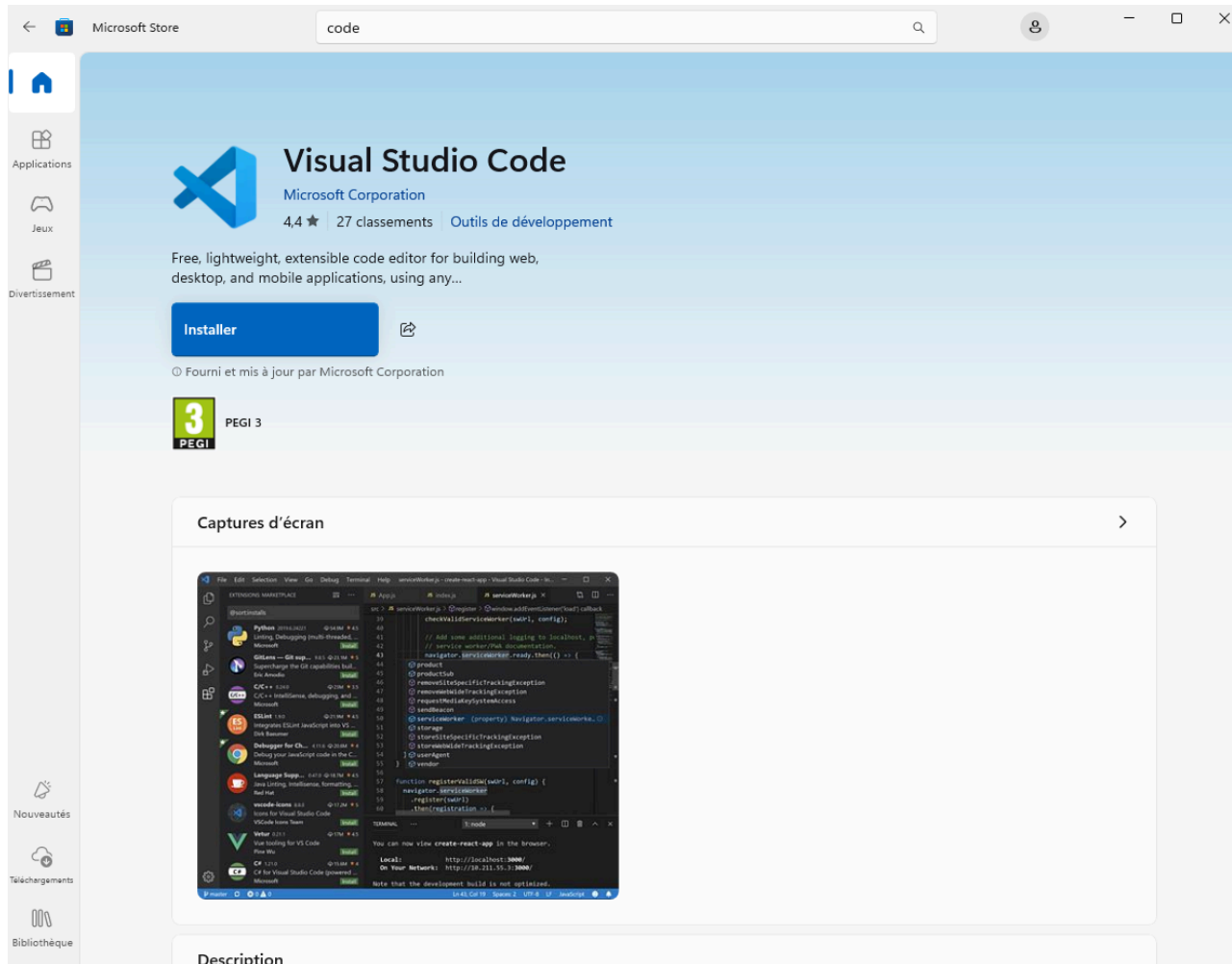
```
wsl --update
```

maybe an Admin login/password is required (so ask for with CII interface)

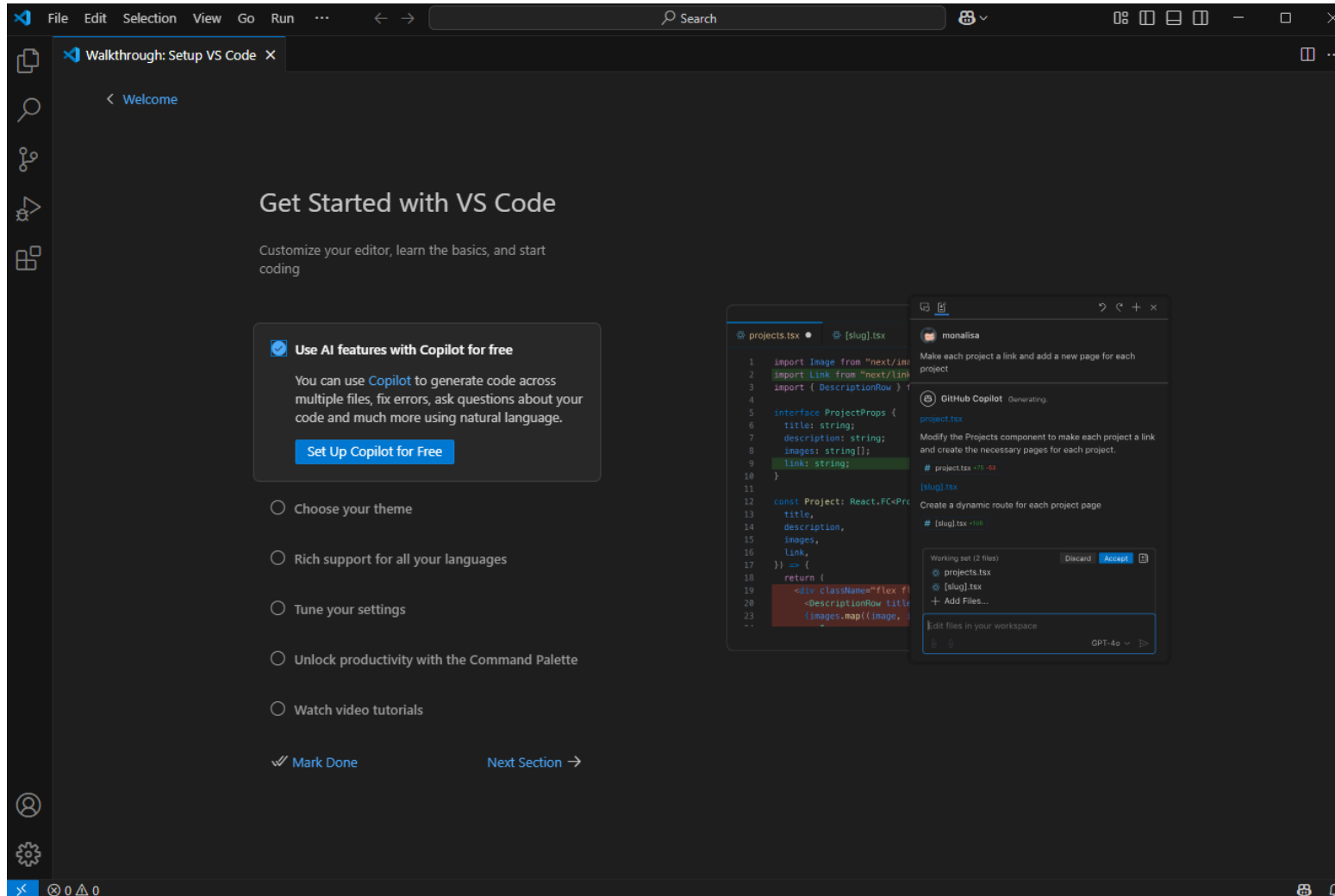
Open a new **Ubuntu terminal** and do

```
sudo apt update  
sudo apt upgrade  
sudo apt install x11-apps -y
```

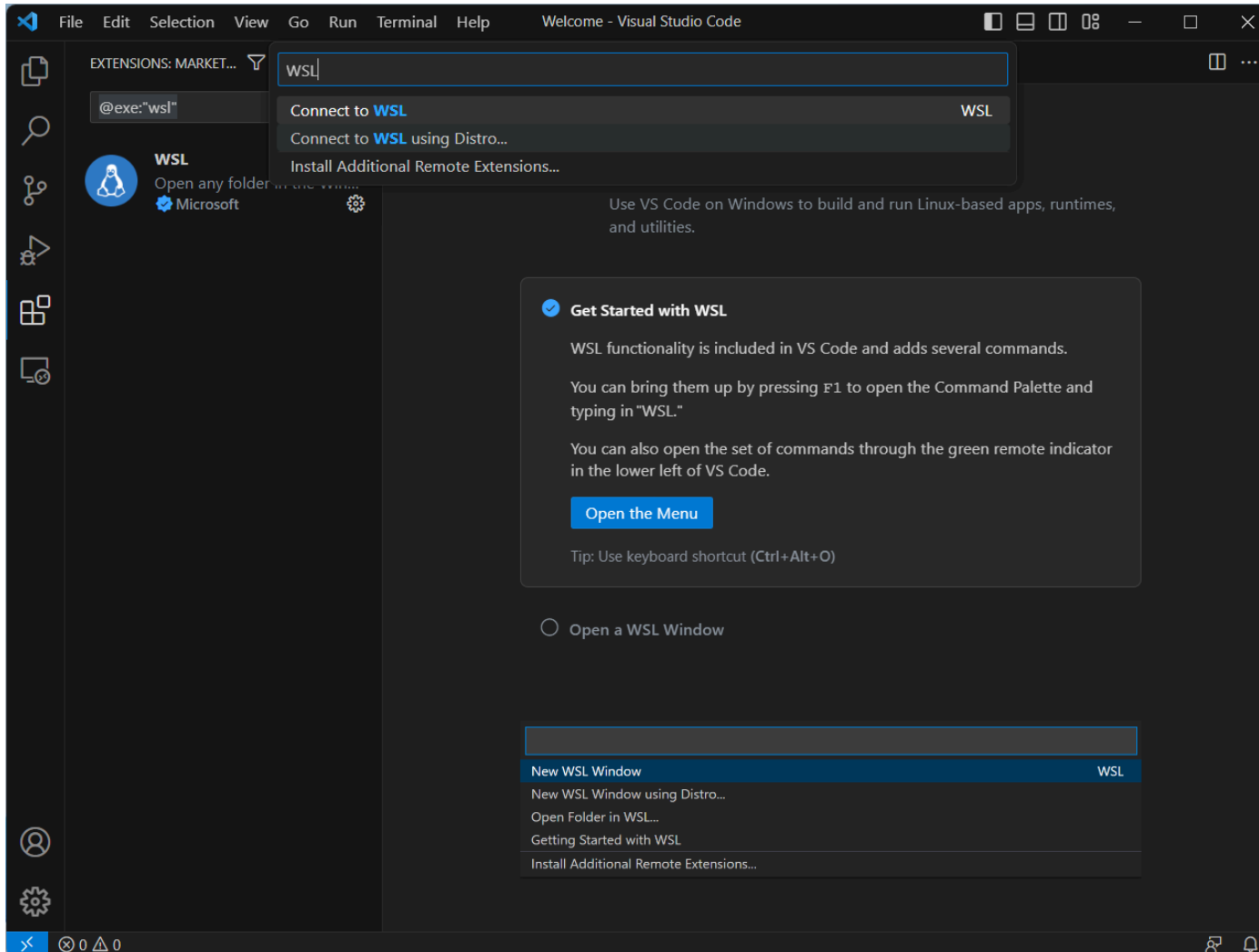
Install Visual Studio Code from Microsoft Store



Open VS Code and install WSL for VS Code

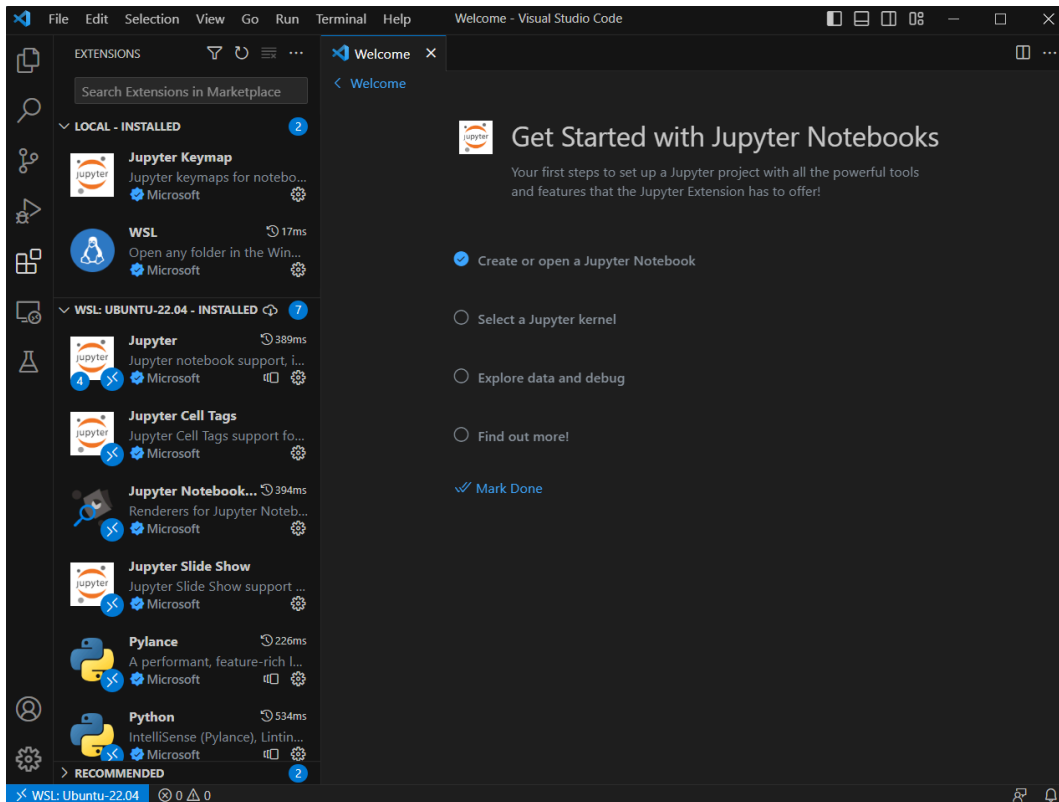


Connect to WSL using Distro (Ubuntu 22.04)



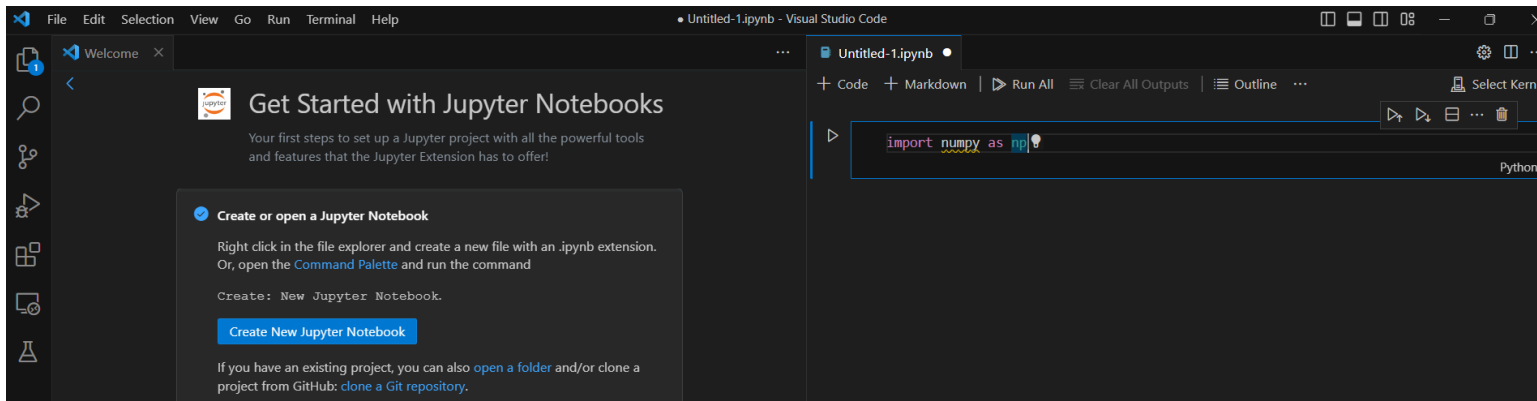
Install extensions for "WSL: Ubuntu 22.04"

- Python
- Jupyter



Jupyter Notebook in VS Code

Create a new Jupyter Notebook

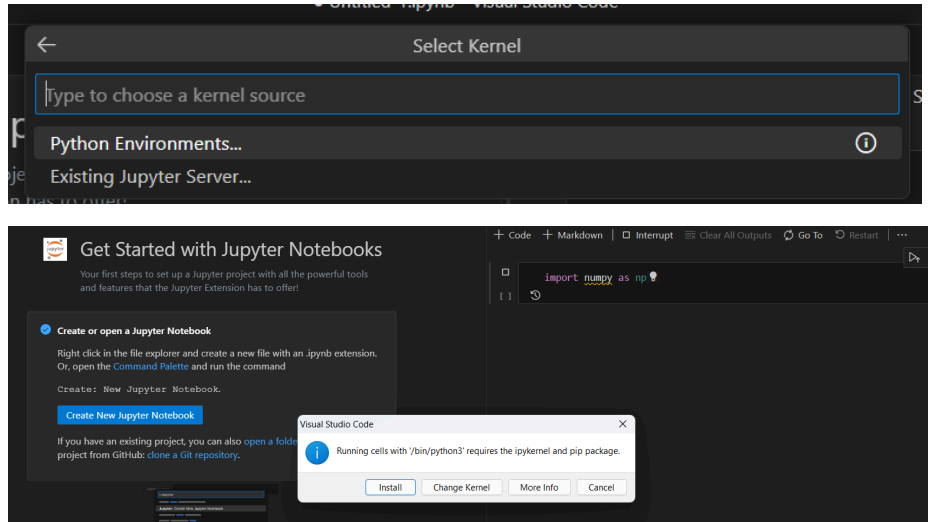


Fill the first cell

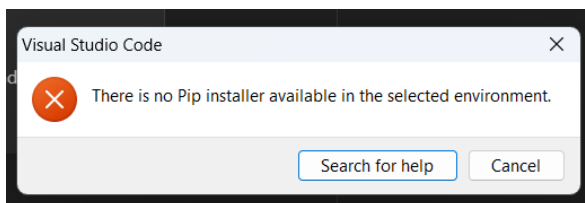
```
import numpy as np
```

Try to run the cell

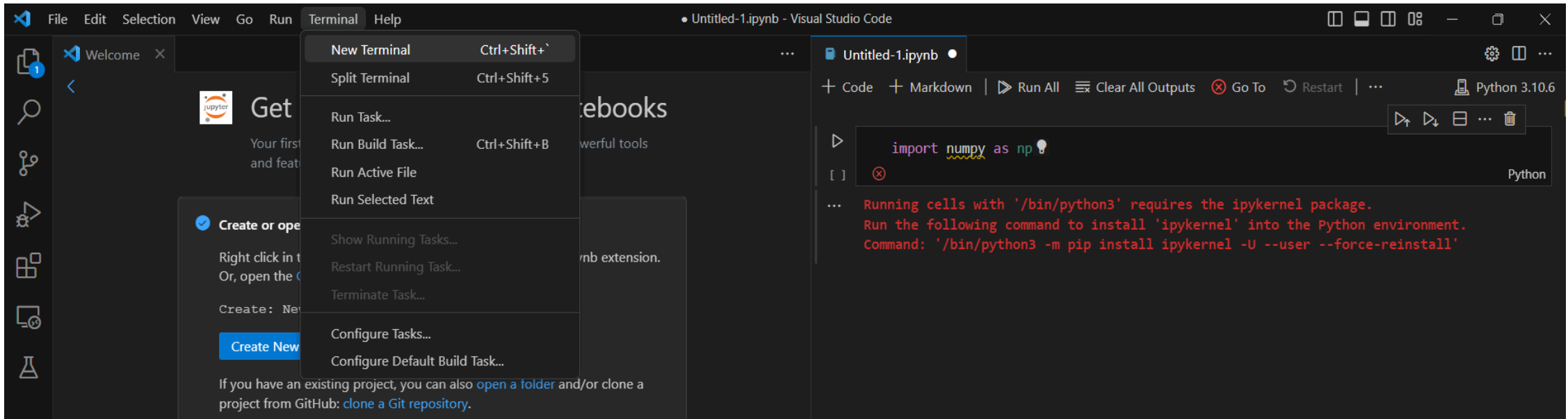
you must choose a Python environment first : Python 3.10 and **Install**



But... 



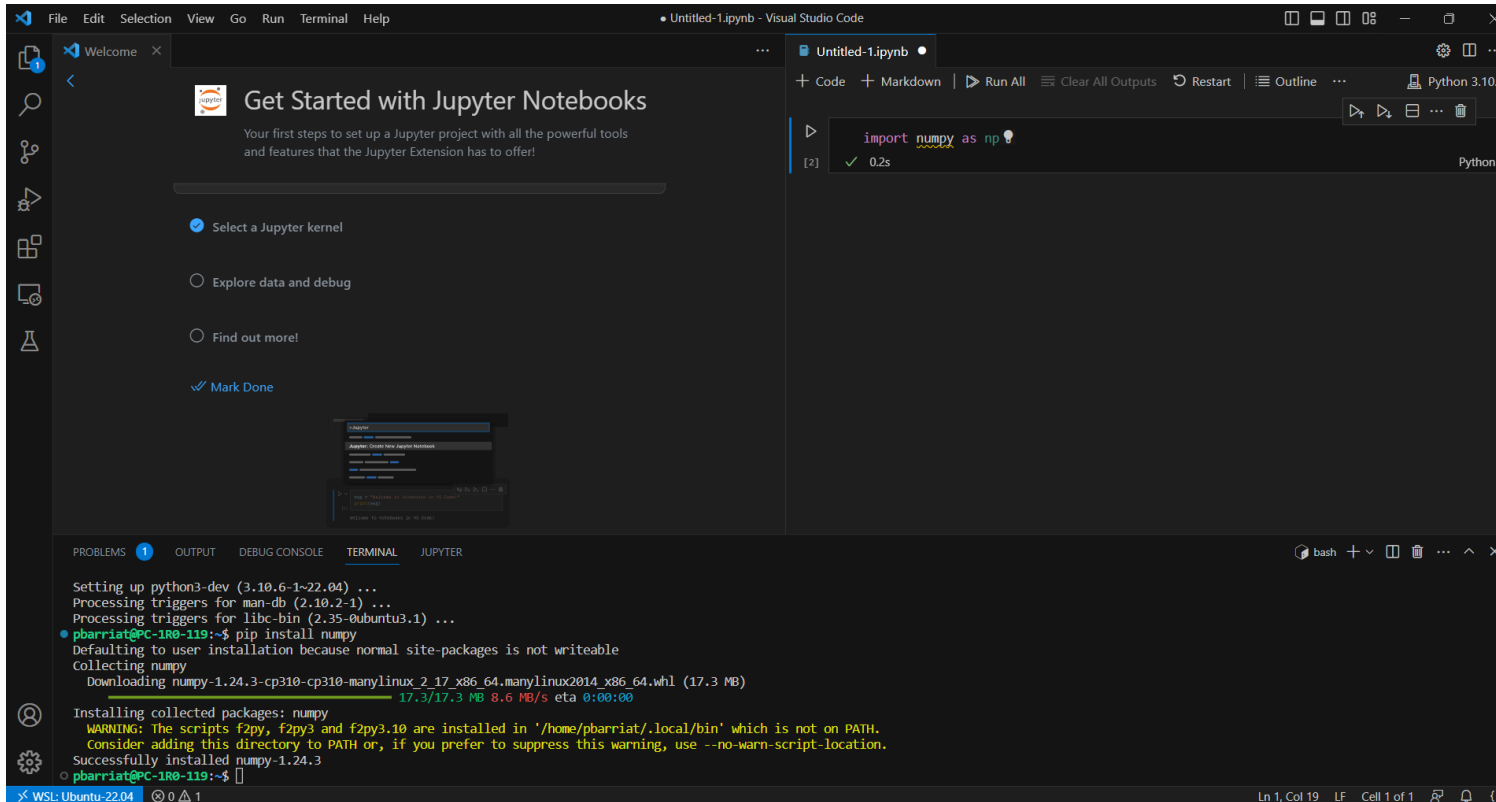
So open your first **WSL terminal** in VS Code



In this **Linux** terminal, do

```
sudo apt install -y python3-pip python3-ipykernel
```

Try again to run the cell !



The screenshot shows the Visual Studio Code interface with a Jupyter Notebook open. The notebook has a single cell containing the code `import numpy as np`. The terminal window at the bottom shows the output of running `pip install numpy` on a WSL Ubuntu 22.04 system. The output indicates that numpy was successfully installed, with a warning about the installation location.

```
Setting up python3-dev (3.10.6-1~22.04) ...  
Processing triggers for man-db (2.10.2-1) ...  
Processing triggers for libc-bin (2.35-0ubuntu3.1) ...  
pbarriat@PC-1R0-119:~$ pip install numpy  
Defaulting to user installation because normal site-packages is not writeable  
Collecting numpy  
  Downloading numpy-1.24.3-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (17.3 MB)  
    17.3/17.3 MB 8.6 MB/s eta 0:00:00  
Installing collected packages: numpy  
  WARNING: The scripts f2py, f2py3 and f2py3.10 are installed in '/home/pbarriat/.local/bin' which is not on PATH.  
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.  
Successfully installed numpy-1.24.3  
pbarriat@PC-1R0-119:~$
```

Great, it's OK now 😊

Let's try a full notebook example

Install Git : `sudo apt install -y git`

Now clone this **Git repository**

```
git clone https://forge.uclouvain.be/elic/learning.git
```

You don't already know what's Git ? 🤔

It's not to late: take a look here

`learning/learning-git`

Now go in the folder `learning/learning-vscode/example` and open the file `example.ipynb`

The first cell implies you must install some requirements

To run this example, install the extensions below

```
sudo apt install -y python3-netcdf4 python3-cartopy
```

Now, try to run all the cells of this notebook !

VS Code nice extensions

- Remote - SSH : lets you use any remote machine with a SSH server
- Tabnine : code faster with AI code completions
- Regex Previewer : shows the current regular expression's matches
- Modern Fortran : Fortran syntax is missing in built-in version

VSCode - Remote SSH : example

Select `Remote-SSH: Open Configuration File`

```
Host cyclone
  HostName cyclone.elic.ucl.ac.be
  User pbarriat
```

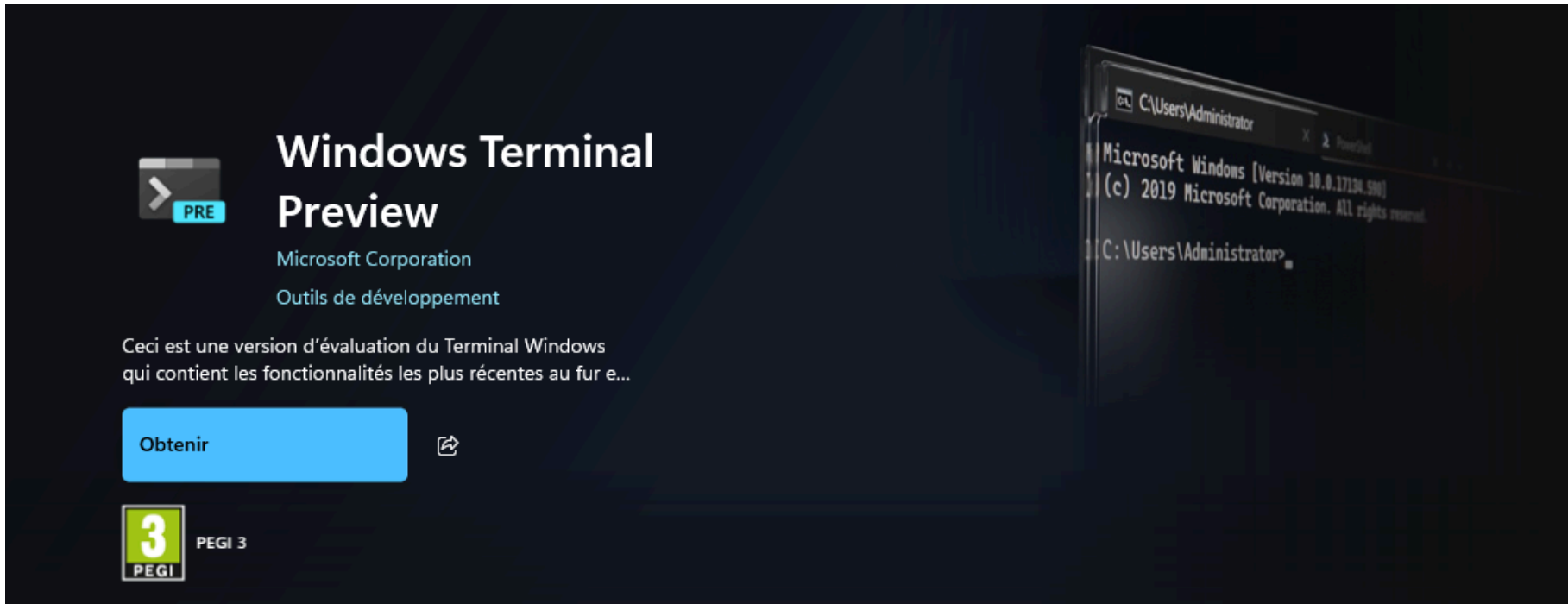
Visual Studio Code is now configured and ready to connect to your server :

click on the green `Open a remote window` button in the bottom left-hand corner and select `Remote-SSH: Connect to Host`

On ELIC workstation, choose a Python environment from `ELIC_Python` module : `/opt/easybuild/...`

Ubuntu with WSL (and without VS Code)

I strongly recommend to install `Windows Terminal Preview` from **Microsoft Store**



Visual Studio Code for WSL